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THE IMPACT OF THE RELATIONSHIP MANAGER FOR INVESTMENT DECISIONS IN FINANCIAL PRODUCTS FOR RETAIL CUSTOMERS.

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ABSTRACT

The level of investments for Brazilians is quite low. We expect that the bank relationship managers (RM) influence on customers' decision to invest in bank products. Through longitudinal data analysis with 80,916 retail customers from a Brazilian bank, we empirically assess the positive impact of frequent RM contact with customers on customer investment in that bank. Additionally, we find that the length of relationship negatively moderates this relation, which suggests that contacts should be implemented early in the relationship since the benefits of RM contact dissipate over time. This reinforces the role of the RM in supporting customer to allocate their investments more appropriately to their needs by reducing information problems and minimizing customer uncertainty.

Keywords: Relationship Marketing, Relationship Manager, Investment Decision, Saving Behaviour

1) INTRODUCTION

The importance of saving money for the future is well known; however, saving and investing remains below an adequate level. Saving means to abstain from consumption now to consume in the future (Wärneryd 1989); for many, this is not an easy task to accomplish. With a high awareness of the need to save for the future, decision-making occasionally fails to occur. Research by the World Bank (2016) suggests that only 4% of Brazilians save sufficient money for the future; hence, Brazil is one of the most unprepared countries in the world. The main reason for not saving is noted by a study by BACEN (Central Bank of Brazil) as the lack of surplus income, given that only 18% of families have regular surplus funds at the end of the month to save. The importance of saving is not only limited to the level of consumption and the financial security of individuals and families but is also related to the country's economic growth. One of the variables of GDP growth is the investment based on savings, in other words,

what households and the government do not spend (domestic savings) or foreign resources (foreign debt). There are limited studies that are dedicated to understanding the saving decision-making process (Rickwood and White 2009); and the studies usually use questionnaires to capture the intention to save or the investment rate declared by customer (Chan and Chan 2011; Ülkümen and Cheema 2011; Ruefenacht et al. 2015; Brounen et al. 2016; Klein and Shtudiner 2016). In this paper, transactional customer data are used to analyse the investments decisions made for retail customers, and not the intention to do it or the investment rate declared by customer, which turns this study into a valuable research due to a rare data.

The goal of this paper is to study saving behaviour and the drivers to invest in financial products, analysing how the bank salespeople, called in this paper as relationship manager (RM), affect customers' decision to invest their financial resources in bank products. Additionally, we investigate the moderating effect of customer satisfaction and the length of relationship (LR). Through longitudinal data analysis at the individual level, we present evidence that frequent RM contact with customers positively impact volume invested in that bank and the relation is negatively moderated by LR, which suggests that contacts should be implemented early in the relationship since the benefits of RM contact dissipate over time. This reinforces the importance of the RM in building a strong relationship with clients and its impact on the company's revenues since the RM helps customer to allocate their investments more appropriately to their needs by reducing information problems and minimizing customer uncertainty.

2) LITERATURE REVIEW AND HYPOTHESES

2.1 Saving Behaviour

The initial Saving Theories studies have analysed individual demographic characteristics to understand the motivation for saving, such as the impact of the income, where savings would increase when the individual's income increased (Keynes; J. M. 1937); and the individual's life stage (Modigliani & Brumberg, 1954). Recent studies have been investigated other economic

and attitudinal factors as influencers of spending and saving decisions of individuals, such as the strength of motivations to save (Katona and Likert 1946; Katona 1974; Lindqvist 1981), the culture and social context impact (Chan and Chan 2011; Ruefenacht et al. 2015), and the economic behavioural influences (Kahneman, Daniel; Tversky 1979). Subsequently, economists have investigated the impact of behaviour on saving and investment decisions (Angeletos et al. 2001; Choi et al. 2009; O'Donoghue and Rabin 2015), including customer behaviour towards relationships with financial providers, which is the focus of this paper.

As savings, we are considering the savings products, which is a safer product with high liquidity. As investments, we are considering all bank products saved by the customer analysed in this paper; these can be safer or riskier, with low or high liquidity. Therefore, for simplicity purpose, the term investment will be used to refer to any saving or investment product.

2.2 Relationship Marketing

Although relationship marketing had been practised since the 1800s, the value of relationship with customers gained focus in the beginning of the 1990s, leading to a relationship orientation (Sharma and Sheth 1995); this has triggered a paradigm shift in the field of marketing (Ravald and Grönroos 1996). The purpose of a relationship-based approach is to develop and nurture lasting relationships with customers at every point of interaction to create benefits for both the firm and customers. Currently, companies are aware of the impact of long-term relationships with customers on their profit (Barry et al. 2008). In the financial sector, because the service is complex, risky and intangible, consumers may or may not be well-informed regarding sector operations (Crosby et al. 1990; Theron and Terblanche 2010). Consequently, success depends largely upon the development of a long-term relationship with customers, which has resulted in a special focus by financial services providers to manage customer relationships adequately. According to Boot (2000) and Agarwala et al. (2009) studies about relationship marketing in banking industry are focused on exploring the impact of relationship banking on credit products,

which offers a competitive advantage through the improvement of the credit risk models by obtaining information from clients. Few studies are related to savings and investment in retail banking. In contrast to a credit transaction, which is an arms-length transaction (Boot and Thakor, 2000), an investment operation can be understood as an opportunity to strengthen the relationship with clients. When customers are in contact with their banks to invest their financial resources that were obtained through diligent work, it is essential to have a trust relationship to be confident of the bank's capacity and reliability, which is to at least safeguard the money and enable it to increase over time. However, Jarvinen (2014) has found that consumer trust is the highest in banking accounts and the lowest in investments. Thus, we expect that the relationship between RM and clients improves consumer trust, as the RM can elucidate the product complexity and risks, minimizing customer uncertainty; this can influence the customer investment decisions.

2.3 The Importance of Relationship Manager

A relationship is formed based on trust between the parties; in addition, it is essential to sustain a long-term relationship (Berry 2001). Creating a strong customer relationship through RM is particularly important for the financial sector given the complexity of products and services (O'Loughlin et al. 2004). This also generates customer dependence on either a bank or an independent financial advisor to make decisions (Howcrofti et al. 2003), mainly for complex and riskier products. Therefore, RM can elucidate doubt about investment products minimizing customer uncertainty; this can impact the customer decision. In the 1980's and 1990's, the concept of RM was developed, mainly in business-to-business markets, as an important factor to build and nurture long-term relationships (Homburg et al. 2000) and to create value for customers as well as for companies (Weitz and Bradford 1999). Additionally, the product-to-service shift, which is the trend of shifting the sales away from products and towards services and solutions, boosted the importance of RM (Vargo and Lusch 2004; Sheth and Sharma 2008).

Subsequently, RM has gained importance in business-to-consumer transactions regarding the provision of customer service and developing a relationship marketing strategy.

In contrast to traditional salespeople, RMs are responsible for end-to-end relationships with customers, which includes communication, coordination of information between company and clients, and they are the focal point of relationship marketing strategy (Weitz and Bradford 1999; Brady 2004). Therefore, new skills and the ability to develop a firm's formal and informal networks are needed to drive sales performance (Gonzalez et al. 2014). In addition to the salesperson's skills, frequent interactions with customers is also an important step in building the relationship (Agarwala et al. 2009). In accordance to the economic behavioural theory, repeated interactions are one of the factors that contributes to the state of cognitive comfort, generating a perception of familiarity and ease in which someone is more likely to believe and accept something, although the information evaluated was not provided correctly to derive a conclusion (Kahneman 2012). These interactions help build a trustworthy relationship between customer and managers. Therefore, we hypothesize: (*H1) The relationship managers' contacts with customers positively influence the clients' decision of investing at that bank.*

2.4 The Moderating Role of Customer Satisfaction

Moderator is a variable that affects the strength of the relationship between dependent and independent variables, allowing the analysis of the relation between them (Evanschitzky and Wunderlich 2006; Walsh et al. 2013). Theron and Terblanche (2010) developed extensive research about existing empirical studies regarding the marketing relationship in the financial services industry, and identified satisfaction as one of the most important dimensions that impacts the relationships between a firm and its customers. Garbarino and Johnson (1999) define satisfaction as 'an overall evaluation based on the total purchase and consumption experience with a good or service over time'. Customers analyse the outcome by comparing the results of expectations prior to purchase with the experience after a purchase. If the expectation

prior to purchase is achieved or exceeded, the level of satisfaction is high. Consequently, satisfied customers tend to maintain the relationship within the firm, purchase more products or services than dissatisfied customers, to increase the share of wallet and to impact on shareholder value (Srivastava et al. 1998; Anderson et al. 1993, 2004; Cooil et al. 2007; Hansen et al. 2013; Paul et al. 2014). Cosby et al. (1990) posit that future sales opportunities depend primarily on the relationship quality; this is the customer satisfaction of the relationship between the salesperson and the client. Therefore, delivering high-level satisfaction during each business contact is vital (Sharma and Sheth 1995). Customer satisfaction was also studied as a positive moderator variable. Homburg et al. (2014) analysed the moderator effect of customer satisfaction between price importance and price search type; Keh and Lee (2006) investigated the impact between the type and timing of rewards; and Notgrass et al. (2016) studied the influence of the satisfaction with the leader on the relationship between the group cohesion and the level of extra effort. Therefore, we propose: (*H2) Customer satisfaction with RM positively moderates the relation between the RM contacts and the customers' investments at that bank.*

2.5 The Moderating Role of the Relationship Length

The perception of satisfactory interactions is created by a cumulative effect of previous experiences (Kalwani and Narayandas 1995). Thus, positive experiences over time can influence customers to be less likely to defect and to be more forgiving (Anderson, Eugene W.; Sullivan 1993). Agarwala et all. (2009) suggests that lower attrition and higher utilization rates are more intense when the relationship length and the proximity are stronger. Consequently, firms in long-term relationships perform at a higher level of sales growth and profitability than firms that are transaction-oriented (Kalwani and Narayandas 1995). In this paper, the length of relationship is the time that the customer has the bank account, measured in days. The relationship length was also studied as a moderator variable. Homburg et al. (2003) analysed the moderator effect of the relationship length between satisfaction and the share of wallet, and

Cooil et al. (2007) analysed the effect between customer satisfaction and loyalty. In both studies, the length of relationship negatively moderates the relations. Therefore, we hypothesize: *(H3) The relationship length negatively moderates the relation between the RM contact and the customer's investments at that bank.*

The conceptual framework in Figure 1 summarises the hypotheses. We expect a direct and positive impact of RM on customer investments at the bank; this is stronger by customer satisfaction with RM and weaker by the length of relationship.

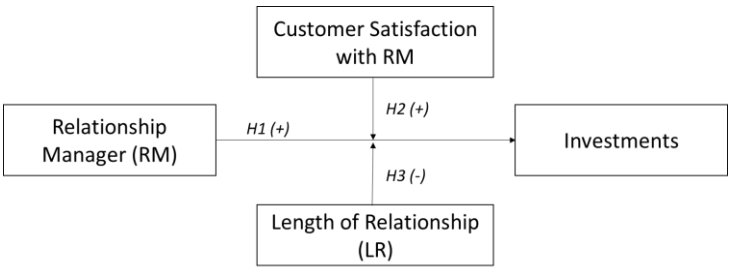

Figure 1: The Model and Hypotheses

3 METHODOLOGY

3.1 Data

To empirically test the hypothesis, a sample of the retail customer base was used from one of the largest multiple banks in Brazil, with approximately five million account holders. The final database consists of 80,916 unique records randomly selected from January 2014 to April 2016, representing 27 periods after the cleansing process. The sample was enriched with demographic and transactional information of each customer per period. It is important to emphasize that the database is composed of customers who do or do not have investments at the bank. Therefore, the data allows us to analyse if the client is an investor and also the volume invested in each product. Among all individuals, 58% had investment products in at least one period. Savings has the largest penetration (29%), followed by CDB (27%), funds (20%) and pension (17%).

All dependent variables are related to the investments that each customer has at the bank: the total volume of investment products; and the volume invested in each product. As financial

volume information is sensitive data, the sample was divided into twenty quantiles according to the investment volume in each product. Since 42% of the sample had no investment during the study period, customers without investment were consolidated in the first range of each product; therefore, the remaining nineteen quantiles were distributed in a manner that allowed data variability. For each quantile, the average values were used, and the log of the variables was calculated due to a skewed data distribution. The definition of variables is presented below, and the summary description is described in Appendices 1,2 and 3.

Table 1 – The definition and operationalization of variables.

Variables	Definition	Operationalization
Investment Volume *(DV)*	The total volume of investment products, per month, that the customer owned at the bank.	Investment volume is measured as ln(1+x), where x is the monthly average volume of investments per quantile, in Brazilian currency (reais).
Savings *(DV and IV)*	The total volume of savings, per month, that customer owned at the bank.	Savings is measured as ln(1+x), where x is the monthly average volume of savings per quantile, in Brazilian currency (reais).
CDB *(DV and IV)*	The total volume of CDB, per month, that customer owned at the bank.	CDB is measured as ln(1+x), where x is the monthly average volume of CDB per quantile, in Brazilian currency (reais).
Funds *(DV and IV)*	The total volume of Funds, per month, that customer owned at the bank.	Funds is measured as ln(1+x), where x is the monthly average volume of Funds per quantile, in Brazilian currency (reais).
Pension *(DV and IV)*	The total volume of Pension, per month, that customer owned at the bank.	Pension is measured as ln(1+x), where x is the monthly average volume of Pension per quantile, in Brazilian currency (reais).
Contacts with RM *(IV)*	The extent of the interaction between RM and customer, per month.	It is measured as ln(1+x), where x is the monthly number of RM contacts with each customer.
Satisfaction with RM *(IV)*	The extent to which customer is satisfied with his RM.	It is measured as ln(1+x), where x is the satisfaction rate measured in 11-point scale (0-10), where 0 is definitely not satisfied, and 10 is definitely satisfied.
Length of Relationship (RL) *(IV)*	The extent of the tenure of individual as client of the bank.	It is measured as ln(1+x), where x is the quantity of days since the customer has been a customer with the bank.
Loans *(IV)*	The number of loans products that customer owned at that bank, per month.	It is measured as ln(1+x), where x is the monthly number of loans products that can vary from 0 to 4: personal loan, instalment loan, auto finance and payroll loan.
Wage *(IV)*	The individual income, per month.	Wage is measured as ln(1+x), where x is the monthly average volume of wage per quantile, in Brazilian currency (reais).

(DV) dependent variable; (IV) independent variable

The volume of each investment product is used as dependent and independent variables to analyse the portfolio diversification and the product allocation considering other customer investments. The rate of RM satisfaction is compiled via a monthly survey developed by a research provider hired by the bank. The interviews were done by phone with a randomly selected sample of customers. The contact between RM and customers can be conducted both proactively by the manager, either by the relationship previously established or by a list provided by the bank that guide to which customer the RM should interact, or reactively, when in contact with customers. All interactions must be recorded in a bank system by the manager. Interactions may or may not be related to investments; therefore, it is not possible to infer a cause-effect impact. Moreover, it is important to highlight that there is a consistent process of recording customer data to avoid interruptions in relationships in case of RM changes. Thus, a client will be analysed from a unique perspective.

From January 2014 to April 2016, there was a trend shift in the evolution of investment volume from the second quarter of 2015 due to an external effect related to changes in business strategy. To anticipate the negative impact on the investments volume, the bank intensified contacts with its clients, increasing the frequency and the number of customers contacted (Appendix 4). Figures 2 and 3 reinforce the effect of the RM on customer investments presenting different investment behaviours of customers with and without RM contacts. The investments of customers without RM interactions have decreased, while for those with RM interactions, the investments have remained positive stable, except for savings that have decreased and CDB that has increased. Moreover, there is statistical evidence that the average investment volume is higher among customers who had at least one contact with their RM in the study period than those who have no contact (Appendix 5).

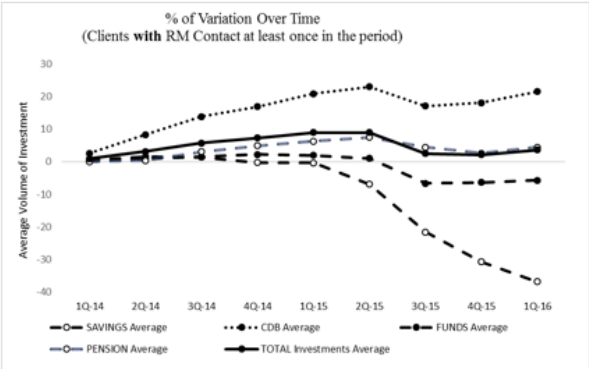

Figure 2 - The variation of the total investments average per clients with RM contact in the period is positively stable, despite the decrease in savings. Source: Author's own production (2017).

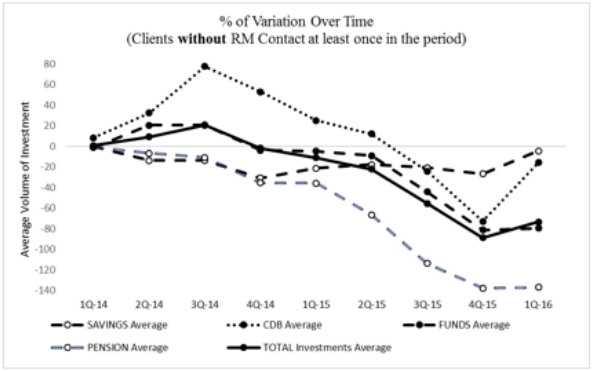

Figure 3 - The variation of the total investments average per clients without RM contact in the period is negative, mainly for pension products. Source: Author's own production (2017).

3.2 Panel Data Model

The sample is organized in a panel format, which allows the capture of the effects over periods. The time variable is the months between 2014 and 2016, and customers are the individual panel variable. It will therefore be possible to control the investments of each customer over months. The Hausman test indicated the fixed effect as the most appropriate model (Appendix 6), which assumes that each individual has her own specific characteristics that influence the explanatory variables (e.g., being male or female could influence the behaviour of savings); therefore, it is necessary to control for this, and the model assumes that the characteristics that do not vary in time are unique to the entity and should not be correlated with other individual characteristics. Moreover, the intercept of each customer is expected to differ from the other because of the risk profile, the investment experience, the money surplus at the end of the month, and the other factors that may impact the decisions to buy investment products; this can be better controlled using fixed effects regression. Additionally, we assessed the robustness of our approach (Appendix 7). In the first robustness test (Models 1 to 4), independent variables were added gradually in the panel regression with fixed effect. In the second robustness test (Model 5), a tobit regression with individual dummies was run to simulate a fixed effect regression. In all models, the coefficient signs of the variables and their p value were unchanged, which

demonstrates the robustness of the models presented in this paper. The statistical software Stata, version 13, was used.

4) RESULTS AND DISCUSSION

The objective of this study is to investigate the impact of RM contacts in customer investment decisions and the moderator effect of customer satisfaction and LR. According to the previously stated hypothesis, a positive direct impact of RM contact is expected on customer investments; this is negatively moderated by length of relationship and positively moderated by customer satisfaction with RM. Six models were tested, as presented in the regression output table (table 2). Model 1 tests the total volume of investments by each customer in that bank with a random effect to analyse the moderators impact. Model 2 tests the total volume of investments by each customer in that bank with fixed effect. Models 3 to 6 test the volume of savings, CDB, funds and pension owned by each customer in that bank, respectively, all of them with fixed effect.

4.1 The impact of the RM contact

The results suggest that RM's frequent contact has a direct and positive impact on clients' investments, whether by total investment volume (2.67, $p<.01$) or by each product. The more contacts with a customer, the greater the volume of savings (.63, $p<.01$), CDB (1.16, $p<.01$), funds (1.13, $p<.01$) and pension (.59, $p<.01$) in that financial institution. Thus, the H1 is supported. This finding is expected because, as suggested by the literature review, RM is a key player by which to build a long-term relationship (Piercy 2006), which is developed by frequent interactions to establish a trust connection and which can improve a firm's profit. RM contact has a much stronger impact on the CDB rate than savings. This finding may be explained by the impact of an advisor's conversation with clients to display the advantages in applying the financial resources in a more profitable product with similar risk as a savings investment. Savings is a well-known product. Savings is considered low risk, has high liquidity and is easy

Table 2 - Output regression table.

	Random Effect	*Fixed Effect*					
	Model 1 **log_Investments Volume**	Model 2 **log_Investments Volume**	Model 3 **log_SAVINGS**	Model 4 **log_CDB**	Model 5 **log_FUNDS**	Model 6 **log_PENSION**	**Hypothesis**
Constant	-13.59***	3.67***	1.40***	0.89***	1.32***	1.23***	
	(0.27)	(0.13)	(0.07)	(0.12)	(0.08)	(0.08)	
log_Contacts with RM	2.68***	2.67***	0.63***	1.16***	1.13***	0.59***	H1, supported
	(0.18)	(0.18)	(0.10)	(0.19)	(0.14)	(0.10)	
log_Length_Relationship (LR)	2.09***	-	-	-	-	-	
	(0.02)						
log_RM_Satisfaction	0.39***	-	-	-	-	-	
	(0.07)						
log_Loans	-0.35***	-0.24***	-0.05***	-0.37***	-0.14***	0.11***	
	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	
log_WAGE	0.20***	0.16***	0.05***	0.08***	0.05***	0.03***	
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	
log_SAVINGS				-0.02***	-0.00	0.02***	
				(0.00)	(0.00)	(0.00)	
log_CDB			-0.01***		-0.01***	0.02***	
			(0.00)		(0.00)	(0.00)	
log_FUNDS			-0.00	-0.02***		0.04***	
			(0.00)	(0.01)		(0.00)	
log_PENSION			0.03***	0.07***	0.07***		
			(0.00)	(0.01)	(0.00)		
Moderating Effects							
RMSatisfaction x RMContact	0.04	0.03	0.05*	-0.01	-0.10**	0.10***	H2, not supported
	(0.05)	(0.05)	(0.03)	(0.05)	(0.04)	(0.03)	
LengthRelationship x RMContact	-0.31***	-0.31***	-0.10***	-0.09***	-0.11***	-0.10***	H3, supported
	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	
Number of observations	2,104,289	2,104,289	2,104,289	2,104,289	2,104,289	2,104,289	
Number of individuals	80,916	80,916	80,916	80,916	80,916	80,916	
R-squared	0.007	0.007	0.01	0.01	0.01	0.01	
Time Dummy	All Significant	All Significant	26 Significant	All Significant	All Significant	22 Significant	

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

to invest, thus people tend to choose it without comparing it to other options. In this context, the RM plays a key role in explaining in detail what the CDB investments are and how they work. Taking advantage of the Fundo Garantidor de Créditos, a non-profit private entity that, since the 90's, has administered a mechanism to protect account holders and investors by establishing a formal deposit guarantee system, clients can apply their money to a more profitable product with low risk; this, in many situations, is a better investment than savings. It is important to state that the best investment product depends on the individual customer's goals and needs, and the RM must investigate this before providing advisory.

4.2 The moderating effects

To analyse the negative moderating effect of LR and the positive moderating effect of satisfaction with RM on customer investments, it was conducted both graphical and simple slope analyses (Aiken and West 1991). Since the moderator variables do not vary over time and do not allow us to interpret the two-way interactions effect, the regression with random effect was used. To assess the robustness of the regression with random effect, the coefficients and their signals in both fixed and random models were compared. Since the coefficients and their signals are consistent in both cases, except for the constant coefficient, we applied the regression with random effect to analyse the moderating effect.

The results suggest that LR and satisfaction with RM have a positive and direct significant effect (LR: 2.09, $p<.01$; Satisfaction: .39, $p<.01$) on investments among customers. We expected this result because as long as customers are satisfied with bank services, they tend to maintain the relationship. Also, the longer the RL, the greater the investments at the bank as customers tend to concentrate their financial services. The interaction coefficients between satisfaction with RM and RM contacts is not statistically significant for the total investments among customers. Thus, H3 is not supported. However, when the individual products are

analysed, the interaction coefficients are statistically significant for savings (.05, p<.1), pension (.10, p<.01) and funds (-.10, p<.05); this suggest that satisfaction with RM positively moderates the relationship between RM contacts and savings and pension, and negatively moderates the relation between RM contacts and funds. We expected this result because satisfied customers with RM tend to have a strong and reliable relationship and invest their financial resources within the bank. Though, customers that invest in funds products might have more financial knowledge and be less dependent on bank advices.

The statistical significance of the interaction coefficients between LR and contacts with RM (-.31, p<.01) suggests that LR negatively moderates the relationship between contacts with RM and the customer's investment rate. Figure 4 shows the interaction of LR and RM contacts.

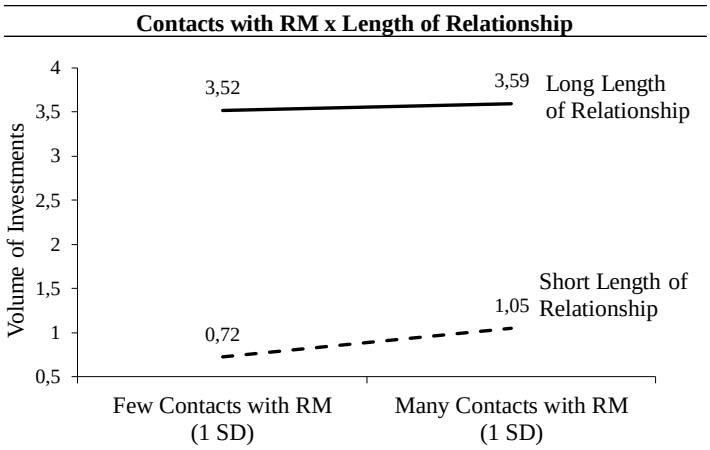

Figure 4 - Graphical analysis of moderation effects on customer investments. Source: Author's own production (2017).

The long LR represents value one standard deviation above the mean, and short LR is one standard deviation below the mean. We find that for customers with short LR (dashed line) and many contacts with RM the investment rate increase to greater extent than a customer from long LR (solid line) (simple slope analysis results: .52, p<.01). We expected this result as new customers might need information to allocate their investments. Since the investments were done, customers tend to require less information from their RM. This suggests that RM should

contact more frequently new customers since the benefits of contact dissipate over time. Thus, despite the moderate effect, we find support for H3.

4.3 Additional analysis

Additionally, regarding the hypotheses, certain customer behavioural characteristics were investigated. First, investment products were investigated individually to analyse the portfolio diversification and the product allocation considering other customer investments. There is evidence that savings has an opposite relation to CDB, and vice versa. In model 3, where savings is the dependent variable, the CDB coefficient is negative and statistically significant (-.01, $p<.01$). In model 4, where CDB is the interested variable to be explained, the savings coefficient is negative and statistically significant (-.02, $p<.01$). The results suggest that customers seeking conservative options choose between savings and CDB. Both products have low risk; however, the interest rates are calculated based on different taxes. The rule of savings interests changed in May 2012; since then, it has been calculated as 70% of the Selic rate plus the Reference Rate (TR, rate close to zero) when the Selic is less than or equal to 8.5% per year; in addition, it pays 0.5% a month plus TR when the rate is above 8.5%. The CDB profitability is calculated based on the CDI rate, which is very similar to the Selic rate, as it is a fraction of the CDI rate according to the offer and negotiation of each bank, and it can be less or higher than the CDI rate. Given that the Selic rate was higher than 8.5% during the study period, between 2014 and 2016, CDB was a more profitable option than savings, considering the income tax (IRF) rebate. However, it is not simple to calculate the profitability of CDB against savings; therefore, most people tend to invest their money in savings. The results indicated that, in addition to the RM contact influencing both savings and CDB products, the impact on CDB is greater than on savings (1.16 vs. 0.63). The impact can be explained by the support that the RM offers to explain the advantages and risks of each product in detail, providing information

to help customers to make better decisions. The results also reinforce the finding that savings and CDB present an inversely proportional relation; when customers are aware of the advantages of CDB, they tend to not invest in savings or to reduce their saving investments to invest in other products. In model 5, where funds products are the interested variable to be explained, CDB has a negative direct impact (-.01, p<.01) and pension has a positive direct impact (.07, p<.01), showing that a customer who invest in funds tend to invest in pension and not invest in CDB. This result is expected, as customers who invest in funds tend to seek more profitable products, as funds can be more lucrative than CDB yet are also riskier; in addition, customers must have more knowledge regarding finances to invest in more complex products and tend to have a plan to save money for the future. Additionally, savings, CDB and funds positively impact pension ownership (model 6); this is statistically significant at a 99% confidence level (.02; .02; and .04, respectively). The results can be interpreted as customers who save money tend to also invest in long-term products. Customers tend to be careful about the future and attempt to anticipate forthcoming events by saving money for retirement and diversifying their financial resources to reduce risks, to achieve greater results and to be prepared for an unexpected occasion.

Second, the relation of loans and investment product ownership was studied to analyse if investor customers also borrow money. An inversely proportional relation between loans and investment products is expected; this is supported by the results, except for pension products. Thus, by increasing 1% of loan product owned at that bank, the savings value decreases by 0,05%; the CDB decreases by 0,37%, and funds decrease by 0,14%, in *reais* (Brazilian currency), *ceteris paribus* at a 99% confidence level. These results emphasize that customers with borrowing needs tend to not have excess money to invest. It would sound unusual if clients who invest their money in products at banks also borrow money from that bank. Conversely,

increasing 1% of loan product owned at that bank, the pension value in *reais* increases 0,11%, *ceteris paribus* at a 99% confidence level. This result can be considered unusual, as pension is also an investment product. It is possible to suppose that pension is a long-term product that imposes high penalties on withdrawal of the investment before the expiration date, and people borrow money instead of withdrawing it from their pension investments. This subject may be deeply investigated in the future research.

Finally, the relation of wage and investments was studied, and we found a direct impact (.16, p<.01). In other words, *ceteris paribus*, increasing 1% of the customer wage in *reais* (Brazilian currency), the investment volume increases 0.16% at a 99% confidence level. Thus, we can conclude that the higher the individual's income, the greater the investment. As previously stated in the literature review, Keynes' theory (1937) correlates the level of an individual's savings to his income; therefore, savings would increase when the individual's income increased. However, as the literature review shows, other factors impact the savings decision, such as the RM contact, which is the main effect investigated in this paper, and we found a higher effect of RM contact on investments than wage in all models analysed.

5. CONCLUSION

The objective of the present study was to test the hypothesis of whether frequent RM contact with their customers positively influences the clients' decision in saving and investing at that bank. Using a linear regression with fixed effects to explore the longitudinal database of one of the largest Brazilian banks, this paper contributes to the extant literature of relationship banking given the statistical evidence that RM positively influences the savings and investments of their clients. Our findings suggest that the greater the contacts with customers, the greater the volume of investment clients own at the bank. Moreover, the results suggest that the length of relationship negatively moderates the relation between the RM contact and customer

investments. In summary, these results reinforce the importance of frequent RM contact with customers to impact customers' investment decisions.

6. LIMITATIONS AND FURTHER RESEARCH

We point out the limitations of our study and some opportunities for further research. First, we carried out our study in the context of a single nation with a single firm and findings cannot be easily generalized across firms, industries or countries. The data regarding investment products do not consider customer investments at other banks or other types of investment such as real estate or investments in own business. Over the period study, the bank passed through changes that might have impacted its customer behaviour. Therefore, an analysis of an extended period could bring robustness to the results. The volume of each investment product was reported as the quantiles average, having lower data variability. Finally, the moderator effects were analysed through a regression with random effect instead of the fixed effect, due to the variables satisfaction with RM and LR does not vary over time. Additional research should analyse RM and customers' characteristics such as their skills and financial expertise, and also qualify the RM contact with customer sorted by investment or other types of interaction.

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8. APPENDIX

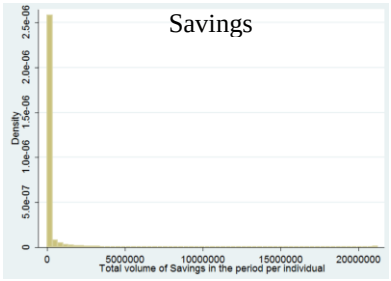
Appendix 1 – Correlation Matrix.

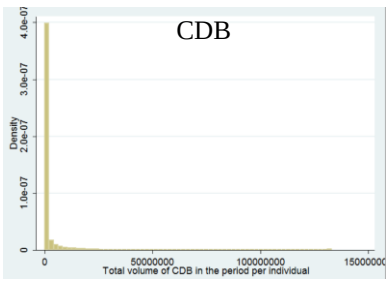
		1	2	3	4	5	6	7	8
1	log_Contacts with RM								
2	log_Loans	0.0418							
3	log_wage	0.0844	0.0435						
4	log_savings	-0.0006	-0.0815	0.0350					
5	log_CDB	0.1026	-0.1811	0.1347	0.0503				
6	log_funds	0.0485	-0.1772	0.1132	0.0661	0.2048			
7	log_pension	0.0483	-0.0495	0.1610	0.0820	0.1626	0.2193		
8	log_Length_Relationship	-0.0123	0.1130	0.0818	0.1399	0.0902	0.1260	0.1040	
9	log_RM_Satisfaction	0.0131	0.0338	-0.0249	-0.0105	0.0248	0.0165	0.0024	0.0152

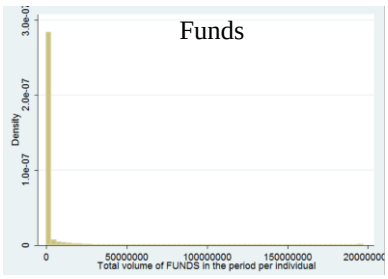
Appendix 2 – Summary statistics of variables.

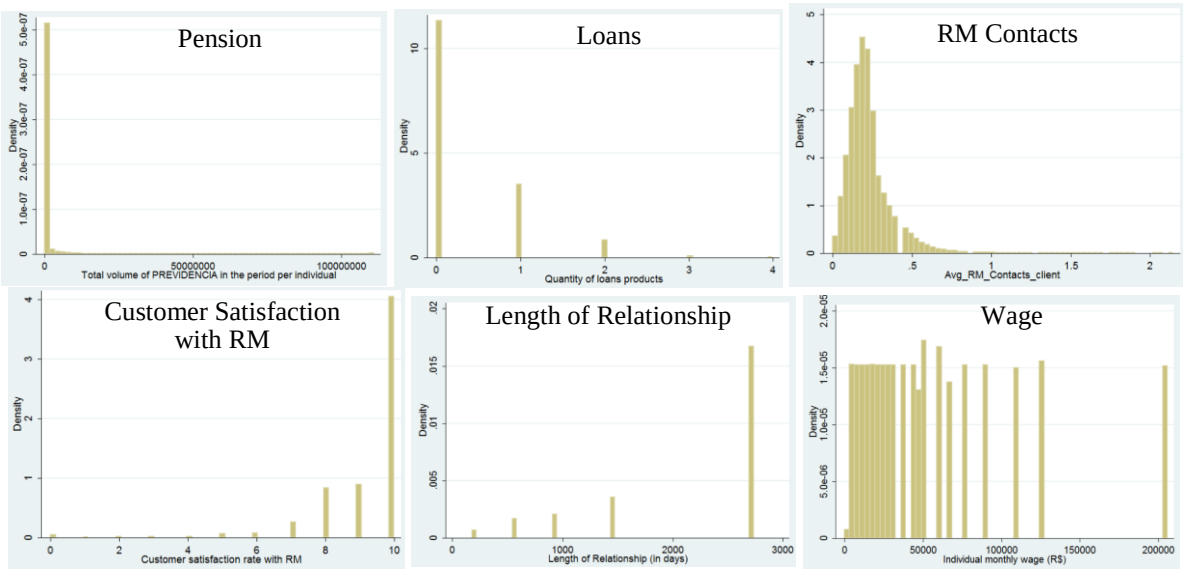
Variable		Mean	Std. Dev.	Min	Max	Observations
log_Contacts with RM	overall	.1414217	.3149246	0	2.833.213	N = 2493504
	between		.0766311	0	.732835	n = 92352
	within		.305459	-.5914133	2.527.564	T = 27
log_Loans	overall	.2215971	.3665688	0	1.609.438	N = 2493504
	between		.3100251	0	157.638	n = 92352
	within		.1955968	-12.273	1.505.203	T = 27
log_wage	overall	1.051.387	10.238	0	1.223.525	N = 2405030
	between		.9485265	0	1.223.525	n = 92352
	within		.4082581	-116.524	2.003.017	T-bar = 26.042
log_savings	overall	1.972.781	3.894.499	0	1.357.635	N = 2404154
	between		3.578.518	0	1.357.635	n = 92352
	within		1.446.246	-1.110.074	150.463	T-bar = 26.0325
log_CDB	overall	2.065.919	4.682.825	0	1.541.052	N = 2404154
	between		4.100.887	0	1.541.052	n = 92352
	within		2.215.165	-1.274.645	1.690.568	T-bar = 26.0325
log_funds	overall	1.780.669	4.410.276	0	1.580.315	N = 2404154
	between		4.065.674	0	1.580.315	n = 92352
	within		1.607.216	-1.343.718	1.644.077	T-bar = 26.0325
log_pension	overall	1.713.778	4.156.577	0	1.522.965	N = 2404154
	between		3.937.328	0	1.522.965	n = 92352
	within		1.178.097	-1.295.181	1.637.937	T-bar = 26.0325
log_Length_Relationship	overall	7.546.512	.6370427	5.198.497	7.914.252	N = 2275425
	between		.6370463	5.198.497	7.914.252	n = 84275
	within		0	7.546.512	7.546.512	T = 27
log_RM_Satisfaction	overall	2.302.817	.2586367	0	2.397.895	N = 2186595
	between		.2586382	0	2.397.895	n = 80985
	within		0	2.302.817	2.302.817	T = 27

Appendix 3 – Histograms of the main variables.

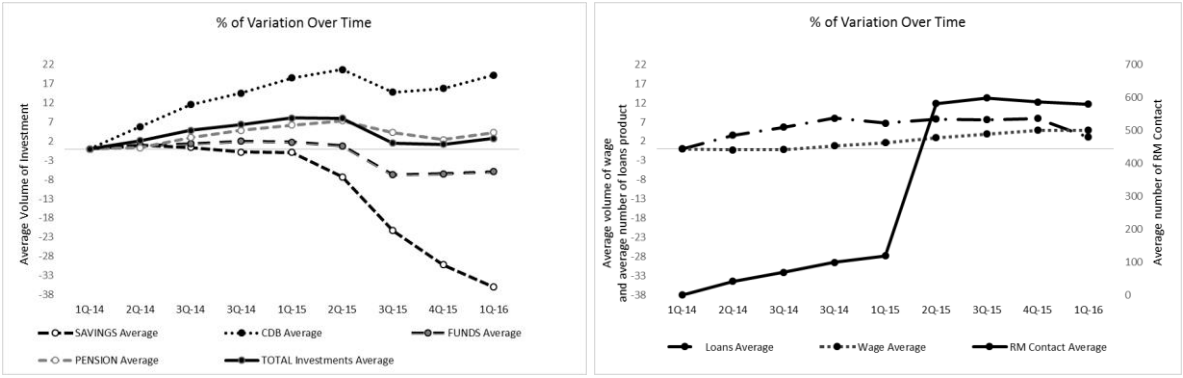








Appendix 4 – Graph of the variation of the average volume of product investments and wage; and average number of products loans and RM contact per client in the study period.



Appendix 5 - T-test between average investment per clients with and without RM contact in the period. The test indicates the average investment volume is higher among customers with RM contact (group 1) when compared to customers without RM contact (group 0).

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	30888	1260934	59944.39	1.05e+07	1143441	1378428
1	2462616	9587894	18957.64	2.97e+07	9550738	9625050
combined	2493504	9484745	18746.6	2.96e+07	9448002	9521487
diff		-8326960	169406.2		-8658990	-7994930

diff = mean(0) - mean(1) t = -49.1538

Ho: diff = 0 degrees of freedom = 2.5e+06

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 0.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 1.0000

Appendix 6 – The Hausman test indicated the fixed effect as the most appropriate model.

Hausman Test	**Coefficients**			
Log_Total Investments Volume	**(b) Fixed effects**	**(B) Random effect**	**(b-B) Difference**	**sqrt(diag(V_b-V_B)) S.E.**
log(number of Contacts with RM)	2891778	2906404	-0.0146264	-
log_Loans	-0.2156414	-0.3270581	0.1114167	.0008273
log_WAGE	0.1396234	0.1841478	-0.0445244	.0007006
Length Relationship x Number of Contacts with RM	-0.3550243	-0.3564316	0.0014073	-
RM Satisfaction x Number of Contacts with RM	0.0121705	0.0169742	-0.0048037	-

b = consistent under Ho and Ha; obtained from xtreg B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 21283.25

Prob>chi2 = 0.0000

(V_b-V_B is not positive definite)

Appendix 7 – Test of robustness

	log_Total_Volume_Investments				
	Panel Regression				*Tobit Regression*
	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	5.320***	3.844***	3.938***	3.668***	-41.381**
	(0.001)	(0.123)	(0.128)	(0.128)	(17.301)
log_Contacts with RM	0.210***	0.212***	2.892***	2.672***	16.811***
	(0.010)	(0.010)	(0.175)	(0.176)	(6.107)
log_Loans		-0.219***	-0.216***	-0.238***	-4.960***
		(0.019)	(0.021)	(0.021)	(0.885)
log_WAGE		0.145***	0.140***	0.157***	1.230**
		(0.012)	(0.012)	(0.012)	(0.515)
log_Length_Relationship (LR)			-	-	4.162**
					(1.859)
log_RM_Satisfaction			-	-	2.802**
					(1.238)
LengthRelationship x RMContact			-0.355***	-0.313***	-2.353***
			(0.018)	(0.018)	(0.718)
RMSatisfaction x RMContact			0.012	0.032	1.129
			(0.051)	(0.051)	(1.088)
Number of observations	2,404,154	2,404,154	2,104,289	2,104,289	15,000
Number of individuals	92,352	92,352	80,916	80,916	577
R-squared	0.001	0.002	0.003	0.007	0.137
Fixed Effects	YES	YES	YES	YES	YES
Time Dummy	NO	NO	NO	YES	NO

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

The direct effect of length of relationship and RM satisfaction in the panel regression was omitted due to a multicollinearity.